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18. An elongated intravascular assembly for performing a procedure within a patient's coronary artery including a guidewire and a catheter which is adapted for rapid exchange over the guidewire without the utilization of an exchange wire or an extension wire, the assembly comprising:

a) an elongated catheter having a catheter shaft with proximal and distal ends,

a distal shaft section which is configured for advancement within a patient's coronary artery and which has

a distal guidewire port in the distal end of the catheter shaft,

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a proximal guidewire port spaced a relatively short distance proximally from the distal guidewire port and a relatively long distance from the proximal end of the catheter shaft, and

an inner lumen extending between the distal guidewire port and the proximal guidewire port which is configured to slidably receive a guidewire therein, and a proximal shaft section much longer than the distal shaft section,

means on the distal shaft section to perform an intravascular procedure which is spaced closer to the distal guidewire port than the proximal guidewire port, and

b) a guidewire slidably disposed within the inner lumen extending between the distal guidewire port and the proximal guidewire port.

19. The assembly of claim 18 wherein means to perform an intravascular procedure includes optical fiber means having a distal end configured to perform the intravascular procedure.

20. The assembly of claim 19 wherein the optical fiber means directs laser energy out of the distal end thereof.

21. The assembly of claim 18 wherein the means to perform an intravascular procedure is a pressure sensing means.

22. The assembly of claim 21 wherein the pressure sensing means is in fluid communication with a second port in the distal end of the catheter.

23. An elongated balloon dilatation catheter assembly for performing an angioplasty procedure within a patient's artery which has means for the rapid exchange of a balloon dilatation catheter over a guidewire without the utilization of an exchange wire or an extension wire, comprising:

- a) an elongated balloon dilatation catheter having
- a catheter shaft with proximal and distal ends, an inflation lumen and a guidewire receiving lumen,
  - a distal guidewire port in the distal end of the catheter shaft in fluid communication with the guidewire lumen,
  - a proximal guidewire port spaced a short distance proximally from the distal guidewire port and a substantial distance from the proximal end of the catheter shaft and in fluid communication with the guidewire lumen;
  - an inflatable dilatation balloon on a distal shaft section having proximal and distal ends, with the distal end of the balloon being spaced closer to the distal guidewire port than the proximal end of the balloon is spaced from the proximal

guidewire port, and having an interior which is in fluid communication with the inflation lumen; and

b) a guidewire which is slidably disposed within the guidewire lumen of the balloon dilatation catheter and which has a portion extending out the distal port and a portion extending out of the proximal port.

24. A method for performing an intravascular procedure within a patient's artery, comprising:

a) providing an elongated guidewire within the patient's vasculature with a distal portion of the guidewire extending within the patient's artery and crossing a desired location therein for performing an intravascular procedure and a proximal portion which extends out of the patient;

b) providing an intravascular catheter comprising:

an elongated catheter shaft having proximal and distal ends and a guidewire receiving inner lumen extending therein to the distal end of the shaft,

a distal guidewire port in the distal end of the catheter shaft in fluid communication with the guidewire receiving inner lumen,

a proximal guidewire port spaced a relatively short distance proximally from the distal guidewire port and a relatively long distance from the proximal end of the catheter shaft in fluid communication with the guidewire receiving inner lumen, and

means to perform an intravascular procedure on a distal portion of the catheter shaft which is configured to perform said procedure in a patient's artery,

c) mounting the intravascular catheter onto the proximal portion of the guidewire which extends out of the patient with the proximal portion of the guidewire being slidably disposed within the guidewire-receiving lumen of the intravascular catheter and extending out the proximal guidewire port;

d) advancing the intravascular catheter into the patient's vasculature over the guidewire, while holding a portion of the guidewire which extends out of the proximal guidewire port in position until the means to perform an intravascular procedure is positioned within a desired location within the patient's artery;

e) performing an intravascular procedure at the desired location within the artery by said means; and

f) withdrawing the intravascular catheter from the patient.

25. A method for performing an angioplasty procedure within a patient's coronary artery, comprising:

a) providing an elongated guidewire within the patient's vasculature with a distal portion of the guidewire extending within the patient's coronary artery and crossing a stenotic location therein for performing an angioplasty procedure and with a proximal portion extending out of the patient;

b) providing a balloon dilatation catheter comprising:

an elongated catheter shaft having proximal and distal ends, and inflation lumen and a guidewire receiving lumen,

a distal guidewire port in the distal end of the catheter shaft in fluid communication with the guidewire receiving lumen,

a proximal guidewire port spaced a relatively short distance proximally from the distal guidewire port and a

relatively long distance from the proximal end of the catheter shaft in fluid communication with the guidewire receiving lumen,

a dilatation balloon on a distal portion of the catheter shaft which has an interior in fluid communication with the inflation lumen extending within the distal shaft section,

c) mounting the balloon dilatation catheter onto the proximal portion of the guidewire which extends out of the patient with the proximal portion of the guidewire being slidably disposed within the guidewire-receiving lumen of the balloon dilatation catheter and extending out the proximal guidewire port;

d) advancing the balloon dilatation catheter into the patient's vasculature over the guidewire, while holding a portion of the guidewire which extends out of the proximal guidewire port in position, until the dilatation balloon on the balloon dilatation catheter is positioned within a desired location within the patient's coronary artery;

e) inflating the dilatation balloon at the stenotic location within the coronary artery;

f) deflating the dilatation balloon; and

g) withdrawing the balloon dilatation catheter from the patient.

26. An elongated balloon dilatation catheter for performing an angioplasty procedure within a patient's coronary artery which has means for the rapid exchange of the catheter over a guidewire without the utilization of an exchange wire or an extension wire, comprising:

a) an elongated catheter shaft having proximal and distal ends;

b) a distal guidewire port in the distal end of the catheter shaft;

c) a proximal guidewire port in the catheter shaft spaced a short distance proximally from the distal guidewire port and a substantial distance from the proximal end of the catheter shaft;

d) a flexible distal shaft section configured to be advanceable within a patient's coronary arteries having a guidewire-receiving inner lumen extending proximally from the distal guidewire port to the proximal guidewire port and having an inflation lumen coextensive at least in part with the guidewire-receiving inner lumen;

d) an inflatable dilatation balloon on the distal shaft section having proximal and distal ends, having an interior which is in fluid communication with the inflation lumen; and

e) a proximal shaft section much longer than the distal shaft section which is an elongated tubular member having a single inner lumen extending therein in fluid communication with the inflation lumen in the distal section and having sufficient stiffness to advance the distal shaft section within a patient's coronary artery over a guidewire slidably disposed within the guidewire receiving inner lumen.

27. The balloon dilatation catheter of claim 26 wherein the inflatable dilatation balloon has with the distal end of the balloon being spaced closer to the distal guidewire port than the proximal end of the balloon is spaced to the proximal guidewire port, and

28. An elongated balloon dilatation catheter for performing an angioplasty procedure within a patient's coronary artery which has means for the rapid exchange of the catheter over a guidewire without the utilization of an exchange wire or an extension wire, comprising:

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- a) an elongated catheter shaft having proximal and distal ends;
  - b) a distal guidewire port in the distal end of the catheter shaft;
  - c) a proximal guidewire port in the catheter shaft spaced a short distance proximally from the distal guidewire port and a substantial distance from the proximal end of the catheter shaft;
  - d) a flexible distal shaft section configured to be advanceable within a patient's coronary arteries having

a first inner lumen which extends proximally from the distal guidewire port and to the proximal guidewire port and which is configured to slidably receive a guidewire therein,

a second inner lumen which is coextensive at least in part with the guidewire-receiving first inner lumen and which is configured to direct inflation fluid therethrough,

a third inner lumen which is coextensive with the first inner lumen and which is configured to be in fluid communication with a second port in the distal end of the catheter shaft,

an inflatable dilatation balloon on the distal shaft section having an interior which is in fluid communication with the second inner lumen; and

- e) a proximal shaft section much longer than the distal shaft section which is a single elongated tubular member with two inner lumens extending therein, one of the two inner lumens being in fluid communication with the second inner lumen in the distal shaft section and the other inner lumen being in fluid communication with the third inner lumen in the distal shaft section.